REMARKS

Claims 1-51 are pending, in which claim 18 is currently amended, and no claim is canceled, withdrawn, or newly added. No new matter is introduced. Claim 18 has been amended to resolve a noted cosmetic informality. Thus, this change does not raise new issues requiring further consideration and/or search, and should be entered under 37 CFR § 1.116.

The final Office Action mailed August 24, 2004 rejected claims 1, 2, 6, 7, 10-12, 16, 18, 19, 23, 24, 27-29, 33, 35, 36, 40, 41, 44-46, and 50 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* (US 6,381,228) in view of *Montpetit* (US 6,366,761) and *Yin et al.* (US 6,018,527), claims 3, 4, 20, 21, 37, and 38 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and *Yin et al.* and further in view of *Leung* (US 6,574,231), claims 5, 22, and 39 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit, Yin et al., Leung,* and further in view of *Fan et al.* (US 6,424,622), claims 8, 9, 25, 26, 42, and 43 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and *Yin et al.* and further in view of *Turner* (US 4,849,968), claims 13, 14, 30, 31, 47, and 48 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and *Yin et al.* and further in view of *Charvillat* (US 5,315,586), claims 15, 32, and 49 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and *Yin et al.* and further in view of *Haulin* (US 5,502,988), and claims 17, 34, and 51 as obvious under 35 U.S.C. § 103 based on *Prieto, Jr. et al.* in view of *Montpetit* and *Yin et al.* and further in view of *Filipiak et al.* (US 5,193,090).

Independent claims 1 and 35 recite "**moving the bandwidth request from the one global queue to one of a plurality of local queues**, the plurality of local queues corresponding to the plurality of channels, wherein the bandwidth request is moved **based on loading of the channels**." Amended independent claim 18 recites "a plurality of local queues coupled to the BCP, the plurality of local queues corresponding to the plurality of channels, **one of the plurality of local queues storing the bandwidth request which is moved from the one global queue based on loading of the channels**."

The Examiner acknowledged that Applicants' arguments, filed June 28, 2004, regarding "'moved based on loading of the channels' with respect to the rejection(s) of claim(s) 1-51 under 35 USC § 103"

were persuasive and the rejection was withdrawn. (Office Action, Page 2) However, in response to the arguments filed on June 28, 2004, the Examiner asserts (Office Action, Pages 4-5):

> The applicant argued that, "... Prieto queues do not in fact store requests that are moved between two stages ..." in page 14, last paragraph, and "...these RQMs are not moved within the stages..." in page 15, paragraph 1.
>
> In response to applicant's argument, the examiner respectfully disagrees that the Prieto queues do not in fact store requests that are moved between two stages and RQM are moved within the stages. As shown in Prieto '228's FIG. 5 and 6 wholesaler and retailer queues stores [sic] and process the RQM (Reservation Query Message) that are moved between the queues. As shown in FIG. 5, the "request" (i.e. RQM requests) are received from the switch into the wholesaler queues which are then forwarded to retailer queue in FIG. 6, when the final winner selection is performed among plurality of request. Then, after the winner (i.e. a selected request) is replied back to the switch; see col. 9, lines 36-65. Moreover, in high-level view is shown in see FIG. 3 and 4. FIG. 4 shows that wholesaler and retailer queues are within MAC controller. FIG. 3 shows that the media access controller 30 receives bandwidth requests from ATM cells switch and replies the request back to the switch; see col. 7, lines 34 to col. 8, lines 10. Thus, it is clear that both RQM or bandwidth request are moved between the two stages of the queues.

This assertion ignores the fact that the first stage queues and second stage queues of *Prieto, Jr. et al.* are described as **virtual queues** which are not described as **moving** anything from a wholesaler queue to a retailer queue (col. 9: 32-38):

> The first stage queues are actually **virtual queues** storing the **state** of each wholesaler group and may be either backlogged or idle. The second stage queue is a **virtual queue** storing fixed sized **virtual packets** representing a **number of some quanta** of uplink bandwidth desired by the retail user connection.

The Examiner further asserts, "see Fig. 4, Stage 2, a plurality of retailer queues 60; and col. 9, line 46-55; note that a RQM request with the highest priority is selected and moved from a wholesaler queue to a retailer queue as a winner." (Office Action, page 9) Applicants respectfully disagree with this interpretation. However, *Prieto, Jr. et al.* instead states (col. 9: 44-55):

> The queue holds the RQMs for retailers 60 for that particular wholesaler 58. As shown, some of the wholesalers 58 are backlogged with retailers 60 waiting for service by the PFQ scheduler. The PFQ scheduler calculates cost functions based on subscription rate and bandwidth utilized in the past. The resulting metric is used for determining a winner by sorting. The winner of the competition will herein be called the "highest priority." The highest priority wholesaler that includes the retailers 60 waiting for service is selected in a first stage, and the highest priority retailer 60 of the selected wholesaler 58 is determined in a second stage. An RGM message is generated by the MAC controller after a winner has been selected at service time.

Again, there is no mention by *Prieto, Jr. et al.* of moving anything from a wholesaler queue to a retailer queue, as this portion of *Prieto, Jr. et al.* mentions only a single "queue" that holds RQMs for

retailers 60 for a particular wholesaler 58. Further, the above passage of *Prieto, Jr. et al.* merely discloses that the PFQ algorithm selects a wholesaler based on past subscription rate and past utilization of bandwidth. First, the PFQ algorithm is not executed to "move" a request (e.g., RQM) from the wholesaler to the retailer, but for selecting a highest priority wholesaler. Secondly, past utilization of bandwidth is not "loading of the channels." Third, at best, the utilization of bandwidth pertains to a particular channel, not multiple channels.

The above construction is consistent with the operation of the *Prieto, Jr. et al.* system. Namely, the reference unequivocally states that the two stages of the HUFS algorithm are "independent and unique for each uplink band" (col. 9: 29-31). *Prieto, Jr. et al.* on col. 9: 25-37 discloses the following operation:

> The basic HUFS algorithm is divided into two stages, although any number of stages may be used to expand the service. The **first stage provides wholesale user selection** and **the second stage provides retail user selection**. Both stages employ a form of packet fair queuing (PFQ), such as the starting potential fair queuing (SPFQ) algorithm. **The first and second stages are independent and unique for each uplink band.** The **first stage queues** are actually **virtual queues storing the state of each wholesaler group and may be either backlogged or idle**. The **second stage queue** is a virtual queue **storing fixed sized virtual packets** representing a number of some quanta of uplink bandwidth desired by the retail user connection.

The above passage further reveals that the **virtual queues** do not in fact store "requests." In fact, the respective virtual queues of these two stages store different information. As seen above, the elements of the first stage virtual queues (which the Examiner equates to the "global queue") represent state information – e.g., "backlogged" or "idle." The elements of the second stage virtual queues (which the Examiner equates to the "local queue") are described as fixed size virtual packets representing the number of desired quanta of uplink bandwidth. The ATM reservation request cells 54 (i.e., RQMs) are stored in the uplink bands 52 (FIG. 4). These RQMs are not moved within the stages.

Moreover, the deficiencies of *Prieto, Jr. et al.* are not cured by the addition of *Montpetit*, which is applied for a supposed teaching of "global queues corresponding to a data rate" (page 9 of the Office Action) and/or *Yin et al.*, which is applied for a supposed teaching of "moving based on loading of the channels/queues" (page 10 of the Office Action).

The secondary references of *Montpetit* and *Yin et al.* are similarly devoid of this feature. *Montpetit* discloses the use of four levels of priority status, P1, P2, P3, and P4, and that "bandwidth for uplink transmission of a data packet to a servicing satellite overhead is allocated based on the data packet's

assigned priority status" (col. 6, lines 56-58; *see also*, col. 5, lines 43-61). The Examiner contends that *Yin et al.* teaches that a "cell is moved based on loading of the channel/queues," citing FIG. 2, FIG.3 and col. 3: 30 - col. 4: 43. However, newly applied *Yin et al.* is directed to "servicing" queues by using a cell scheduler (per Abstract), and nowhere suggests "moving" a cell from one queue to another queue, much less "**moving the bandwidth request from the one global queue to one of a plurality of local queues**."

The other references of *Leung*, *Fan et al.*, *Charvillat*, and *Filipiak et al.*, which were applied for supposed teachings of the various dependent claims, fail to satisfy the above claim features.

Furthermore, Applicants maintain (as previously proffered) that a *prima facie* case of obviousness has not been established, as it is improper to combine references where the references teach away from their combination. ***In re Grasselli***, 713 F.2d, 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). For example, *Prieto, Jr. et al.*, in col. 2, lines 36-47, recognizes the problem with controlling reservations from a central terrestrial location, such as a Network Operations Center (NOC), noting that wasteful trips to the satellite are required. Thus, the *Prieto, Jr. et al.* system provides, as an objective, an onboard demand assigned multiple access (DAMA) protocol for use in connection with a processing satellite communications network (col. 2, lines 61-65). In operation, the DAMA controller on the satellite receives a reservation query message (RQM) and buffers the requests into priority-class queues. In stark contrast, the *Montpetit* system contemplates maintaining queues at a **terrestrial** location. It is clear that the *Montpetit* system employs a queuing mechanism at a **terrestrial** location. However, this notion of a terrestrial based mechanism is taught away by *Prieto, Jr. et al.*, which utilizes an **onboard** mechanism. Thus, the proposed combination of *Prieto, Jr. et al.* and *Montpetit* is unsustainable.

The Office Action, on pages 2 and 6, asserts that the features of "terrestrial location and onboard mechanism" are not recited in the rejected claims. The Examiner misunderstands the reasoning for the non-combinability of the two references of *Prieto, Jr. et al.* and *Montpetit*; in other words, the language of terrestrial location and onboard mechanism are discussed in the context of the *Prieto, Jr. et al.* and *Montpetit* references to demonstrate that the Examiner's proposed modification of the *Prieto, Jr. et al.* system based on the teachings of *Montpetit* is without technical or legal merit. Applicants are not attempting to suggest that such language is indicative of the claimed features.

Accordingly, Applicants respectfully urge the indication that independent claims 1, 18, and 35 are allowable.

Claims 2-17, 19-34, and 36-51, depending correspondingly from these independent claims, are also allowable. These dependent claims are further patentable on their own merits. For example, dependent claim 3 recites "filling the one local queue with subsequent rate requests up to a queuing threshold; and filling another one of the local queues with additional rate requests upon filling the one local queue beyond the queuing threshold." After acknowledging that *Prieto, Jr. et al., Montpetit,* and *Yin et al.* do not satisfy these features, the Examiner applies *Leung*, apparently equating the claimed queuing threshold with space in the storage location in the memory (Office Action, pages 7 and 19-20). Applicants assert that one of ordinary skill in the art would not reasonably consider *Leung*'s constraint of the memory space or size as a "queuing threshold," as *Leung* is directed to storing **portions of data frames** in different storage locations when the entire data frame exceeds a prescribed size of a storage location, (col. 2: 9-26) which is different from filling local queues with rate requests. Also, dependent claim 13 recites "moving the rate requests from the local queues to the corresponding global queues for reallocation in response to the defragmentation command." The Examiner is forced to rely on a fourth reference of *Charvillat* for a supposed teaching of a "defragmentation command and reallocation in response to the defragmentation command" (Office Action, page 27). However, as noted earlier, the base reference of *Prieto, Jr. et al.* does not provide for any capability to move requests, much less in the manner claimed.

Favorable consideration of this application is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8501 so that such issues may be resolved as expeditiously as possible. All correspondence should continue to be directed to our below-listed address.

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